INSTRUCTIONS FOR TABLE 10

RISK SUMMARY

PURPOSE OF THE TABLE: • To provide a summary for each Receptor by Medium, Exposure Route, and Exposure Point of cancer risks and non-cancer hazards that trigger the need for remedial action. • The Risk Assessor may consult the Remedial Project Manager and other members of the project team to determine what levels of risk may be actionable at the site and what should be included in Table 10. The risks shown on Table 10 should be based upon the Remedial Project Manager's recommendation. If all risks are below actionable levels, determine with the Remedial Project Manager which chemicals should be shown to document the suitability of a No Action decision.	***Table 10 presents cancer risk and non-cancer hazard information for those COPCs and media/exposure points that the Remedial Project Manager determines trigger the need for remedial action (the risk drivers).***
INFORMATION DOCUMENTED: • The cancer risk and non-cancer hazard to each Receptor for each chemical by Exposure Route and Exposure Point for risk drivers • The cancer risk and non-cancer hazard for each Exposure Point, Exposure Medium, and Medium across all Exposure Routes for risk drivers • The total cancer risks and non-cancer hazards for a Receptor across all media for risk drivers • The primary target organs for non-carcinogenic hazard effects for risk drivers.	***For the purpose of these instructions, those COPCs determined to trigger the need for cleanup are simply referred to as "Chemicals."***
TABLE NUMBERING AND SUMMARY BOX INSTRUCTIONS: • Complete one copy of Table 10 for each unique combination of the following three fields that will be quantitatively evaluated (Scenario Timeframe, Receptor Population, and Receptor Age). • Enter each combination of these three fields in the Summary Box in the upper left corner of the table. • Number each table uniquely beginning with 10.1 and ending with 10.n where "n" represents the total number of combinations of the three key fields. • Different tables should be prepared to address RME and CT Risk and Hazard summaries. • Tables 10.1. RME through 10.n. RME should be completed for RME Risk and Hazard summaries. • Table 10.1 CT through 10.n.CT should be completed for CT Risk and Hazard Summaries.	***It is possible that some tables may contain the same data associated with different descriptions in the Summary Box in the upper left corner.*** ***Separate tables may be necessary to ensure transparency in data presentation. Replication of information is readily accomplished using spreadsheet software.*** ***Consult the EPA risk assessor for alternatives (e.g., footnotes) to preparing multiple tables with the same information.***

INSTRUCTIONS FOR TABLE 10

RISK SUMMARY (continued)

GENERAL NOTES/INSTRUCTIONS FOR THIS TABLE	
• Cancer risk and non-cancer hazard information for only those COPCs and media/exposure points that trigger the need for remedial action (the risk drivers) is to be presented in Table 10. • All table entries are presented on Tables preceding Table 10. • Documentation of the non-cancer hazard and cancer risk values for chemicals was presented on Table 7. • Documentation of the carcinogenic risk values for radionuclides was presented on Table 8. • Total cancer risks and non-cancer hazards associated with each Receptor are to be presented for each Exposure Point, Exposure Medium, Medium across all media and all Exposure Routes.	
HOW TO COMPLETE/INTERPRET THE TABLE	
SUMMARY BOX IN UPPER LEFT CORNER	
Row 1 - Scenario Timeframe	
Definition: • The time period (current and/or future) being considered for the Exposure Pathway.	
Instructions: • Choose from the picklist to the right.	***Current*** ***Future*** ***Current/Future*** ***Not Documented***
Row 2 - Receptor Population	
Definition: • The exposed individual relative to the Exposure Pathway considered.	***For example, a resident (receptor population) who drinks contaminated groundwater.***

INSTRUCTIONS FOR TABLE 10

RISK SUMMARY (continued)

Instructions: • Choose from the picklist to the right.	***Resident*** ***Industrial Worker*** ***Commercial Worker*** ***Construction Worker*** ***Other Worker*** ***Golfer*** ***Jogger*** ***Fisher*** ***Hunter*** ***Fisher/Hunter*** ***Swimmer*** ***Other Recreational Person*** ***Child at School/Daycare/Playground*** ***Trespasser/Visitor*** ***Farmer*** ***Gatherer*** ***Gardener*** ***Other***

INSTRUCTIONS FOR TABLE 10

RISK SUMMARY (continued)

Row 3 - Receptor Age	
Definition: • The description of the exposed individual, as defined by the Region or dictated by the site.	***For example, an adult (Receptor Age) resident (Receptor Population) who drinks contaminated groundwater.***
Instructions: • Choose from the picklist to the right.	***Child*** ***Adult*** ***Adolescents (teens)*** ***Pre-Adolescents*** ***Not Documented*** ***Child/Adult*** ***Geriatric*** ***Sensitive*** ***Other*** ***Infant*** ***Toddler*** ***Pregnant***
BODY OF THE TABLE	
Column 1 - Medium	
Definition: • The substance (e.g., air, water, soil) that is a potential source of contaminants in the Exposure Medium. (The Medium will sometimes equal the Exposure Medium.) Usually, the Medium is that targeted for possible remediation.	***Enter only the Media that have risks or hazards exceeding target levels.***
Instructions: • Choose from the picklist to the right. 1. For each Medium, the last entry in this column should be "Medium Total." This refers to the total risk/HI for each Medium (for all chemicals, Exposure Routes, Exposure Points, and Exposure Media) for the current Receptor. These totals are recorded in th Carcinogenic and Non-Carcinogenic Exposure Routes Total columns.	***Groundwater*** ***Leachate*** ***Sediment*** ***Sludge*** ***Soil*** ***Surface Water*** ***Debris*** ***Other*** ***Liquid Waste*** ***Solid Waste*** ***Air*** ***Surface Soil*** ***Subsurface Soil***
Column 2 - Exposure Medium	

INSTRUCTIONS FOR TABLE 10

RISK SUMMARY (continued)

Definition: • The contaminated environmental medium to which an individual may be exposed. Includes the transfer of contaminants from one medium to another. ***For example:*** ***1) Contaminants in Groundwater (the Medium) remain in Groundwater (the Exposure Medium) and are available for exposure to receptors.*** ***2) Contaminants in Groundwater (the Medium) may be transferred to Air (the Exposure Medium) and are available for exposure to receptors.*** ***3) Contaminants in Sediment (the Medium) may be transferred to Fish Tissue (the Exposure Medium) and are available for exposure to receptors.***	***Enter only the Exposure Media that have risks or hazards exceeding target levels.***
Instructions: • Choose from the picklist to the right. • For each Exposure Medium, the last entry in this coluymn should be "Exposure Medium Total." This refers to the total risk/HI from each Exposure Medium (for all chemicals, Exposure Routes, and Exposure Points) for the current Receptor. These totals are recorded in the Carcinogenic and Non-Carcinogenic Exposure Routes Total columns.	***Groundwater*** ***Leachate*** ***Sediment*** ***Sludge, Soil*** ***Surface Water*** ***Debris*** ***Other*** ***Liquid Waste*** ***Solid Waste*** ***Air*** ***Vapors*** ***Plant Tissue*** ***Animal Tissue*** ***Fish Tissue*** ***Surface Soil*** ***Subsurface Soil*** ***Particulates*** ***Spring Water***
Column 3 - Exposure Point	
Definition: • An exact location of potential contact between a person and a chemical within an Exposure Medium. ***For example:*** ***1) Contaminants are in Groundwater (the Medium and the Exposure Medium) and exposure to Aquifer 1 - Tap Water (the Exposure Point) is evaluated.*** ***2) Contaminants in Groundwater (the Medium) may be transferred to Air (the Exposure Medium) and exposure to Aquifer 1 - Water Vapors at Showerhead (the Exposure Point) is evaluated.*** ***3) Contaminants in Sediment (the Medium) may be transferred to Fish Tissue (the Exposure Medium) and Trout in Dean's Creek (the Exposure Point) is evaluated.***	***Enter only the Exposure Points that have risks or hazards exceeding target levels.***

INSTRUCTIONS FOR TABLE 10

RISK SUMMARY (continued)

Instructions: • Provide the information as text in the Table. • For each Exposure Point, the last entry in this column should be "Exposure Point Total." This refers to the total risk/HI from each Exposure Point (for all chemicals, Exposure Routes, and Exposure Points) for the current Receptor. These totals are recorded in the Carcinogenic and Non-Carcinogenic Exposure Routes Total Columns.	***Exposure Point should be defined in the same way as was done in the Planning Table 1.***
Column 4 - Chemical	
Definition: • The COPCs quantitatively considered in the risk characterization.	***Enter only the chemicals that have risks exceeding target levels.***
Instructions: • Enter the COPCs from previous tables that exceed target levels. • Enter the term "Chemical Total" at the end of the list of chemicals for each Exposure Point. • Enter the term "Radionuclide Total" at the end of the list of radionuclides.	
Columns 5, 6, 7 and 8 - Carcinogenic Risk - Ingestion, Inhalation, Dermal, and External (Radiation)	
Definition: • The cancer risk value calculated by Receptor for each chemical for each Exposure Route for each Exposure Point.	***Enter only the risks that exceed target levels.*** ***The value at the bottom of each column presents the cancer risk from all chemicals by Exposure Route for each Exposure Point.***
Instructions: • Enter the cancer risk value calculated by Receptor for each chemical for each Exposure Route for each Exposure Point that exceeds target levels. • Enter the cancer risk totals for each Exposure Route in the last row.	
Column 9 - Carcinogenic Risk - Exposure Routes Total	
Definition: • The total cancer risk for each chemical across all Exposure Routes at each Exposure Point.	

INSTRUCTIONS FOR TABLE 10

RISK SUMMARY (continued)

Instructions: • Enter the sum of the cancer risks across Exposure Routes for each chemical. • Enter the sum of the cancer risks in this column for each Exposure Point in the "Exposure Point Total" row. • Enter the total cancer risk for each Exposure Medium and Medium in the "Exposure Medium Total" and "Medium Total" rows. • Enter the total cancer risk across all Media and all Exposure Routes as "Receptor Risk Total".	
Column 10 - Non-Carcinogenic Hazard Quotient - Primary Target Organ	
Definition: • The primary effect reported as a primary target organ effect in IRIS, HEAST, or other source.	
Instructions: • Enter the primary target organ effect as reported in IRIS, HEAST, or other source. This target organ should also appear in Table 5.	***Consult the EPA risk assessor to determine if multiple effects should be provided.***

INSTRUCTIONS FOR TABLE 10

RISK SUMMARY (continued)

Columns 11, 12, and 13 - Non-Carcinogenic Hazard Quotient - Ingestion, Inhalation, Dermal	
Definition: • The non-cancer hazard calculated by Receptor for each Chemical for each Exposure Route for each Exposure Point.	***Enter only the hazards that exceed target levels.*** ***The value at the bottom of each column presents the non-cancer hazard by Exposure Route for each Exposure Point, for all effects considered together.***
Instructions: • Enter the non-cancer hazard value calculated by Receptor for each chemical for each Exposure Route for each Exposure Point that exceeds target levels. • Enter the non-cancer hazard totals for each Exposure Route in the last row, corresponding to the term "Chemical Total" in Column 9.	***Consult the EPA risk assessor for summing hazard quotients.***
Column 14 - Non-Carcinogenic Hazard Quotient - Exposure Routes Total	
Definition: • The total non-cancer hazard calculated for each chemical across all Exposure Routes at each Exposure Point.	***The totals in each column present the total non-cancer hazards across all Exposure Routes for each Exposure Point.*** ***The values at the bottom of this column present hazard quotients for target organs.***
Instructions: • Enter the sum of non-cancer hazards across the three Exposure Routes in Columns 11, 12, and 13. • Enter the sum of the non-cancer hazards across Exposure Routes for each chemical and primary target organ. • Enter the sum of the non-cancer hazards in this column for each Exposure Point, Exposure Medium, and Medium in the "Exposure Point Total," "Exposure Medium Total," and "Medium Total" rows, respectively. • Enter the total hazard index across all Media and all Exposure Routes as "Receptor HI Total." • Enter the total hazard index for primary target organs. • Sum the hazard quotient target organ effects across all media by target organ and enter into the appropriate boxes below the table.	***Consult the EPA risk assessor for specific instructions in summing hazard quotients.***